

5. (Amended) An electric machine comprising:

a rotor body defining pole faces and having parallel sides perpendicular to the pole faces;

a winding module fitted over the parallel sides of the rotor body, the winding module including at least one flat winding that is angled at an end turn, wherein a vertex of the angled end turn is aligned with an axis of rotation and wherein said at least one flat winding is disposed orthogonally on said axis of rotation; and

a pair of spindles secured to respective ends of the rotor body, the spindles securing ends of the winding module to the rotor body.

REMARKS

In the Office Action, Kaminiski et al., claim 9 has been rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 9 has also been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In addition, claims 1-4 and 9 have been rejected under 35 USC §103(a) as being unpatentable over Kirtley, Jr. et al. (3,999,091) in view of Coggeshall (2,844,746). Claims 5-8 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kirtley, Jr. et al. (3,999,091) in view of Coggeshall (2,844,746) and in further view of Mosher et al. (4,614,888). Claims 1 and 5 have been amended. Claim 9 has been cancelled. No new matter has been added. Applicants hereby request further examination and reconsideration of the present patent application in view of the following amendments and remarks. Claims 1-8 remain pending in the present patent application.

Rejection of claim 9 under 35 U.S.C. §112, first and second paragraph

Applicants have cancelled claim 9 thus rendering Examiner's rejection moot under 35 U.S.C. §112, first and second paragraph. Accordingly, Applicants respectfully submit that the rejections under 35 U.S.C. §112, first and second paragraph, be withdrawn.

Rejection of claims 1-4 and 9 under 35 USC §103(a)

Applicants respectfully traverse the Examiner's rejection of claims 1-4 and 9 under 35 USC § 103(a) as being unpatentable over Kirtley, Jr. et al. in view of Coggeshall. Kirtley, Jr. et al. generally discuss a superconducting machine having a wound dampershield winding disposed in the cold region of the machine and having electrical leads to a warm region of such machine. Coggeshall generally discusses support means for preventing axial shifting of the rotor end windings of a dynamo-electric machine.

As discussed above, claim 9 has been deleted thus rendering Examiner's rejection of claim 9 under 35 USC § 103(a) moot. Applicants respectfully traverse the Examiner's rejection of claims 1-4 because nowhere do Kirtley, Jr. et al. and Coggeshall, singly or in combination, teach an electric machine comprising at least one flat winding that is angled at an end turn wherein the at least the one flat winding is disposed orthogonally on the axis of rotation as recited in independent claims 1 and 5. In contrast, Kirtley, Jr. et al. show in Figure 2 a winding disposed around the axis of rotation. In fact, Kirtley, Jr. et al. teaches "a supporting tube 10 that supports both the main field winding 3 and the damper-shield winding 2" thus having both windings 3 and 2 disposed around the axis of rotation (column 4, lines 67-68 and shown in Figure 2). In addition, Applicants respectfully traverse Examiner's statement that it is inherent that the vertex in Kirtley et al. provides a preloaded axial offset to allow the windings to lengthen and shorten without elongation. Furthermore, the winding 3 is disposed on the surface of supporting tube 10 around the axis of rotation; thus, the windings cannot lengthen and shorten

because the radial forces created during operation are orthogonal to the orientation of the windings. On the other hand, the windings of the present invention are disposed orthogonally on the axis of rotation such that the windings are coincident with the radial forces created during operation thereby allowing the windings to lengthen and shorten due to the preloaded axial offset.

As such, Applicants respectfully submit that Kirtley, Jr. et al. and Coggeshall do not meet the limitations of the claimed invention because Kirtley, Jr. et al. and Coggeshall, singly or in combination, are devoid of any teaching or suggestion of an electric machine comprising at least one flat winding that is angled at an end turn wherein the at least the one flat winding is disposed orthogonally on the axis of rotation. Thus, it is respectfully requested that the rejection of independent claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Kirtley, Jr. et al. and Coggeshall be withdrawn.

Claims 2-4 each depend directly or indirectly from independent claim 1 and are therefore believed to also be allowable for the reasons set forth above. In addition, these dependent claims set forth further limitations that patentably distinguish the invention over all of the prior art of record including Kirtley, Jr. et al. and Coggeshall. Thus, it is respectfully requested that the rejection of dependent claims 2-4 under 35 U.S.C. § 103(a) be withdrawn.

Rejection of claims 5-8 under 35 USC §103(a)

Applicants respectfully traverse the Examiner's rejection of claims 5-8 under 35 USC § 103(a) as being unpatentable over Kirtley, Jr. et al. in view of Coggeshall and in further view of Mosher et al. The generalities of Kirtley, Jr. et al. and Coggeshall have been discussed above. Mosher et al. generally discuss a method for sequentially building rotors for use in electrical generators.

As discussed above, Kirtley, Jr. et al. and Coggeshall do not meet the limitations of the claimed invention because Kirtley, Jr. et al. and Coggeshall, singly or in

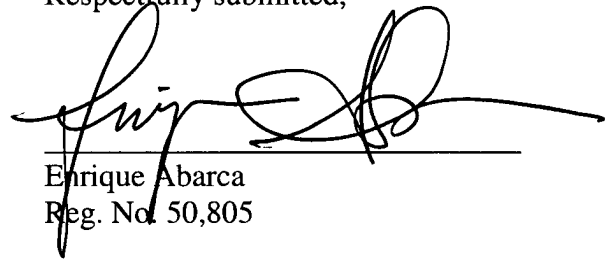
combination, are devoid of any teaching or suggestion of an electric machine comprising at least one flat winding that is angled at an end turn wherein the at least the one flat winding is disposed orthogonally on the axis of rotation as recited in independent claims 1 and 5.

Applicants respectfully submit that Mosher et al. is devoid of any teaching or suggestion of an electric machine comprising at least one flat winding that is angled at an end turn wherein the at least one flat winding is disposed orthogonally on the axis of rotation as recited in independent claims 1 and 5. As such, Applicants respectfully submit that Mosher et al., Kirtley, Jr. et al, and Coggeshall do not meet the limitations of the claimed invention because Mosher et al., Kirtley, Jr. et al, and Coggeshall, singly or in combination, are devoid of any teaching or suggestion of an electric machine comprising at least one flat winding that is angled at an end turn wherein the at least the one flat winding is disposed orthogonally on the axis of rotation. Thus, it is respectfully requested that the rejection of independent claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Kirtley, Jr. et al. and Coggeshall in view of Mosher et al. be withdrawn.

Claims 6-8 each depend directly or indirectly from independent claim 5 and are therefore believed to also be allowable for the reasons set forth above. In addition, these dependent claims set forth further limitations that patentably distinguish the invention over all of the prior art of record including Kirtley, Jr. et al., Coggeshall and Mosher et al. Thus, it is respectfully requested that the rejection of dependent claims 6-8 under 35 U.S.C. § 103(a) be withdrawn.

For the reasons set forth above, Applicants respectfully submit that amended independent claims 1 and 5 and their respective dependent claims are in condition for allowance. There are no time-related fees associated with the filing of this Amendment and Response. If any fees have been incurred with the filing of this Amendment and Response, please charge the fees to Deposit Account No. 07-0868.

Respectfully submitted,



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ATTACHMENT A

Marked Up Copies of Amended Claims From Amendment and Response to Office Action dated December 12, 2001:

1. (Amended) A winding module for an electric machine comprising at least one flat winding that is angled at an end turn, wherein a vertex of the angled end turn is aligned with an axis of rotation[.] and wherein said at least one flat winding is disposed orthogonally on said axis of rotation.

5. (Amended) An electric machine comprising:

a rotor body defining pole faces and having parallel sides perpendicular to the pole faces;

a winding module fitted over the parallel sides of the rotor body, the winding module including at least one flat winding that is angled at an end turn, wherein a vertex of the angled end turn is aligned with an axis of rotation[;] and wherein said at least one flat winding is disposed orthogonally on said axis of rotation; and

a pair of spindles secured to respective ends of the rotor body, the spindles securing ends of the winding module to the rotor body.